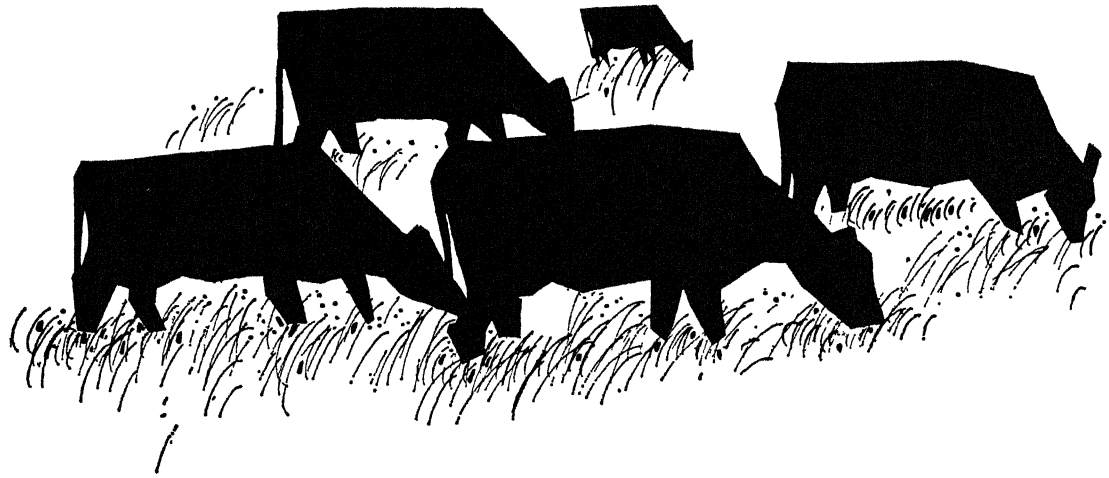
Bulletin 493



Ohio's Dairy Industry

COOPERATIVE EXTENSION SERVICE
THE OHIO STATE UNIVERSITY

Ohio's Dairy Industry

Prepared by the Departments of Agricultural Economics and Rural Sociology, Dairy Science, and Dairy Technology of The Ohio State University

Milk and Dairy Products for Ohio Consumers

It is difficult to imagine an Ohio family without milk and other dairy products on the dinner table.

Ohio's 10.4 million consumers expect dairy foods to be readily available at reasonable prices in their neighborhood.

Despite the popularity of pre-packaged convenience foods, most homemakers would be in a quandary without milk and milk products. Many convenience food items require the addition of milk before they are ready to eat.

Everyone in Ohio has a personal interest in the strength and growth of Ohio's dairy industry. Nothing in Ohio's economy today can substitute for dairy foods as a source of essential nutrients. Dairying and related industries are important employers of labor and other resources.

Besides furnishing essential and economical food nutrients, Ohio's dairy industry generates more than $550 million in economic activity annually. Some 25,000 dairy farmers produce $275 million worth of milk and meat each year. Processing and distribution firms add another $300 million in payrolls and purchases of facilities and materials for handling dairy products.

Importance of the Dairy Industry

Dairying ranks first as a source of farm income in 36 of Ohio's 88 counties, and second in 16 counties. It is an important source of farm income in all but one county.

Each productive cow in an Ohio dairy herd adds about $1,000 in economic activity to business on Main Street. The average dairy cow in Ohio produced 9,440 pounds of milk in 1966, nearly 1,000 pounds above the national average of 8,513 pounds. Among the 50 states, Ohio ranks seventh in income from dairying, eighth in number of dairy cows, and 13th in average production per cow.

To produce milk and meat, Ohio dairy cows each year consume more than 1.5 million tons of hay and grass valued at about $40 million. They eat 2 5 million tons of silage valued at $20 million and 900,000 tons of grain worth nearly $50 million.

Nearly 85 percent of all milk marketed in Ohio is Grade A, with a retail value of $500 million. But the state is also a significant processing and manufacturing center for dairy products. Ohio ranks first in the production of evaporated milk; third in Swiss cheese; fourth in cottage cheese, ice cream, ice milk, and fluid milk; and fifth in condensed milk.

About 250 plants in Ohio are engaged in the processing and manufacturing of dairy products. They employ 18,000 workers who earn slightly more than $100 million each year.

The nutritional well being and satisfaction gained from the consumption of food by all Ohioans is closely related to an abundant supply of milk and other dairy foods.

About 77 percent of the calcium needed to build bones and teeth and to meet other body requirements comes from milk. Dairy foods also provide 24 percent of the average person's daily protein needs, 38 percent of the phosphorus, and 13 percent of all food energy.

The major components of milk are found nowhere else in nature. They are milk fat, milk sugar (lactose), and milk casein. Milk fats contain some 65 different fatty acids, whereas vegetable fats contain only 10 or 12. Milk sugar promotes the efficient utilization of calcium. Milk casein is the major protein of milk and also supplies phosphorus to the diet.

The protein, calcium, and other essential components of milk are almost completely used by the body. This fact does not apply to many other foods. Milk is easily digestible. It is frequently prescribed as the only food for persons on certain restricted diets.

Eight of the 20 amino acids in milk protein are essential in the diet. These are balanced for use by the body. Two of these amino acids are lysine and tryptophane. Since cereal proteins are generally deficient in these two, milk improves the nutritional value of the diet when used with cereal foods.

Recent surveys reveal that 7 percent of Americans do not get enough protein, and 21 percent need more calcium in their diets. This situation is worse among low-income groups in metropolitan areas. Milk in their diet could correct this deficiency.

From the cost standpoint, milk is an economical source of protein. It is cheaper than meat, many vegetables, and cereal.

Percentage of Total Nutrients Contributed by Major Food Groups

	Food Energy	Proteins	Fat	Carbo-hydrates	Calcium	Phos-phorus
Dairy Products (except butter)	12.6	23.8	14.8	7.5	76.7	38.2
Eggs	2.2	5.8	3.5	0.1	2.4	5.9
Meat (including poultry and fish)	19.2	38.6	34.1	0.1	3.3	23.8
Dry Beans, Peas, etc.	2.9	5.1	3 5	2.2	2.6	5.7
Potatoes and Sweet Potatoes	2.8	2.4	0.1	5 3	0.9	3.9
Dark Green Vegetables	0.3	0.5		0.5	1.6	0.6
Flour and Cereal Products	20.9	19.1	1.5	36.9	3.3	12.9

Production and Value of Dairy Products in Ohio, 1965

Product	Volume	No. of Plants	Retail Value of Product	Rank Among States
Butter	21,156,000 lbs.	24	$ 18,000,000	13
American Cheese	11,767,000 lbs.	11	10,000,000	17
Swiss Cheese	10,077,000 lbs.	22	10,000,000	3
Brick and Munster	308,000 lbs.	7	300,000	6
Italian Cheese	5,084,000 lbs.	3	5,000,000	8
Cottage Cheese	62,669,000 lbs.	125	22,000,000	4
Condensed Milk	19,082,000 lbs.	8	3,000,000	5
Condensed Skim Milk	52,405,000 lbs.	16	8,000,000	8
Evaporated Milk	242,666,000 lbs.	7	38,000,000	1
Nonfat Dry Milk	34,802,000 lbs.	14	14,000,000	10
Ice Cream*	12,629,000 gals.	500	70,000,000	4
Ice Milk*	12,629,000 gals.	2,527	8,000,000	4
Fluid Milk	1,500,000,000 qts.	195	375,000,000	4
			$581,000,000	

* Includes counter-freezers

Trends in Ohio's Dairy Industry

Greater urbanization in Ohio affects the dairy industry in many ways:

—With less available farm land, land prices are rising and the economic usage of land is becoming increasingly important.

—Greater demand for fluid milk leaves a smaller supply for manufactured purposes.

—Efficiency is becoming more important than ever before in milk production, processing, manufacturing, and distribution.

—The market for new and improved dairy products is expanding.

—Consumers are demanding more specialty food items, convenience foods, and snack foods.

The dairy industry operates on a low profit margin. Increased efficiency in milk production, processing, and distribution has kept the price of milk sold to the consumer relatively constant despite marked increases in labor and other costs. The "real" price of milk was actually less in 1967 than in 1958.

Ohio has made substantial progress in upgrading its health requirements and standards for milk. New regulations, procedures, and standards went into effect in 1966.

Dramatic changes are taking place within the dairy industry. Each year there are fewer dairy farmers and fewer milk cows. Production per cow is going up, but total milk production is down. Yet, aggregate consumer demand is high and will probably go higher.

Since 1956, the number of farms producing Grade A milk has dropped from 26,000 to 14,300. The number of Grade B producers has slipped from 40,000 to 11,400.

Both the decline in Ohio milk cow numbers and the increase in production per cow have exceeded the national pace in recent years. The number of Ohio cows has dropped steadily from 692,000 in 1959 to 523,000 in 1966. The current annual rate of decline is 5.8 percent.

Somewhat offsetting the drop in cow numbers, milk production per cow in Ohio jumped from 7,390 pounds in 1959 to 9,440 pounds in 1966.

In recent years, however, the net effect of these trends has been a reduction of milk production in Ohio. The all-time record high of 5,738 million pounds was reached in 1955. Since then, milk output has declined about 14 percent to 4,937 million pounds in 1966.

By comparison, United States milk production was at a record high of 126.6 billion pounds in 1964. It had slipped to 120.2 billion pounds by 1966. Thus, in the past 12 years, Ohio has dropped from 4.7 percent to 4.1 percent of the total U.S. milk output.

The exit of milk producers is similar to, but faster than, the declining number of producers throughout agriculture caused by advancing technology, higher efficiency, higher capital requirements, and alternative opportunities. With fewer dairy farmers, serious questions are being raised in relation to present and long-run milk supplies.

Milk supplies can only be short in terms of demand. In Ohio's eight federal order markets, per capita annual consumption of fluid milk—including whole milk, cream, and low-fat milk—has been relatively constant in recent years. But demand has been extremely strong for cottage cheese, ice cream, and ice milk—the dairy products most closely associated with fluid milk markets.

The typical Ohioan ate 4.6 pounds of cottage cheese last year, 50 percent more than in 1950. Combined consumption of ice cream and ice milk was 5.2 gallons per person, 30 percent above the 1950 level.

On a milk equivalent basis, however, per capita consumption of all dairy products dropped from 732 pounds in 1950 to 605 pounds in 1966. This was due largely to major decreases in high butterfat products.

As a result of higher utilization and declining national milk supplies during the past two years, producers are enjoying higher prices. Blend prices in the eight Ohio fluid milk markets averaged $5.10 in 1966, about 70 cents per 100 pounds above the 1965 price.

Average Dairy Milk Delivery per Producer
(Pounds)

Market	1955	1965
Toledo	347	969
Northeastern Ohio	342	825
Columbus	378	902
Dayton-Springfield	369	885
Cincinnati	255	603
Wheeling	251	625
Tri-State	259	676
Youngstown-Warren		803

One other trend vitally affects the future of Ohio's dairy industry. That is human population While the population explosion is far from over, the rate of growth is no longer as rapid as it was immediately after World War II Ohio's present population is estimated at 10,400,000. In 1950, the state's population was 7,946,627, and by 1960 it had grown to 9,706,367. The continuing upward trend will mean a continuing demand for milk and other dairy products.

Per Capita Consumption, 1950 and 1966
(Pounds)

Product	1950	1966
Fluid Whole Milk	278	264
Cream	11 1	7 5
Low Fat and Skim Milk	16	38
Butter	9 1	5 5
Cheese	7 7	9 9
Cottage Cheese	3 1	4 6
Evaporated Milk	18 5	8 4
Ice Cream—Ice Milk*	3 9*	5 2*
Nonfat Dry Milk	3 5	4 8
Butterfat	29	21
Solids—Not Fat	43 7	41 0
Total Milk Equivalent (3 5% butterfat basis)	732 0	605 0

* This figure is given in gallons

Efficiency in the Ohio Dairy Industry

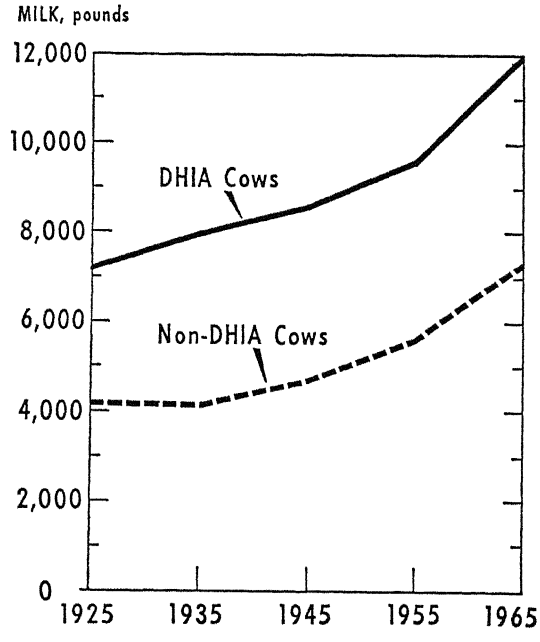
Despite significant progress in the past, there is a continuing need for even greater efficiency in all phases of Ohio's dairy industry in the future.

Dairy farms and processing and manufacturing plants are becoming larger and fewer in number. Capital investments are tremendous Competition from non-dairy products is keen All of these factors place a high premium on management ability and the importance of keeping up-to-date with modern methods and facilities.

Although substantial capital investment is required in dairy farming, once established, the farm can generate a large gross income To obtain an adequate net income, however, the manager must be concerned with having sufficient volume of business to spread his overhead costs over many hundred pounds of milk.

Good records are an important management tool. Cows on which Dairy Herd Improvement Association records were kept have produced about two tons more milk per cow annually than non-DHIA cows. The gross value of this extra 4,000 pounds of milk at present prices is $200. Since the extra feed cost is less than $100, the margin of income over feed costs is more than $100 per cow.

Annual Milk Production of DHIA-Record Cows and Non-DHIA Cows, 1925-1965



Higher production rates help to insure lower unit feed, labor, and overhead costs. Yet, a high production rate alone does not guarantee satisfactory farm or labor income.

Ultimate dairy farm profits also depend on feed crop yields and feed quality, total dollar volume related to capital investment, labor costs and overhead, rate of herd turnover, cost of replacements, and other management items.

Studies of Ohio dairy farm records have provided some measurements of Ohio dairy efficiency. Based on full-time operator income in 1966, the analysis indicated that one man, on the average, handled 22 cows and sold 282,000 pounds of milk. The lowest rate in the sample was 19 cows and 218,000 pounds per man, and the high was 26 cows and 358,000 pounds per man. The median investment per dairy farm was $83,500 in 1966 with a gross return of 37 cents per dollar invested. Overhead represented 31 percent of the gross. Income for the full-time operator varied dramatically from $1,882 to $17,040 annually, with a medium income of $7,757.

Ohio contains some of the most modern dairy processing plants in the nation. Yet, continued efforts to increase efficiency are just as necessary in these plants as on dairy farms throughout the state.

How Ohio's Dairy Industry Can Meet the Needs of the Consuming Public

If Ohio families are to continue to enjoy the nutritional and taste-satisfying benefits of milk and dairy products:

—The dairy industry must continue to expand its productive capacity and increase its efficiency in production, processing, and distribution.

—Dairying must be a profitable farm enterprise. The handling of milk and other dairy products must be economical and profitable. It must be reasonable in cost in relation to comparable food products, and it must be readily available to consumers.

—Dairy farm managers must understand how to obtain greater production from each man's labor. Ways must be found to increase production per cow and to convert feed to milk more efficiently. Superior crop production methods with a low unit cost must be made available to all farm operators.

—Dairy plant managers must obtain more know-how in solving problems involved with the keeping qualities of milk and dairy products. New dairy products especially adapted to Ohio conditions must be developed. Many new varieties of cheese are possible. Products and processes from Europe and other foreign sectors should be studied for their adaption to Ohio's manufacturing facilities.

—Specialty products command a higher market value. Ohio dairy industry can be strengthened economically through an ambitious program of new product development and promotion.

—Consumers should be made more aware of the nutritional and economic characteristics of milk and dairy products. This involves much more than facts and figures on nutrition. Milk and other dairy products must be made appealing and as readily available as other foods.

—Education and research efforts must be stepped up to provide the highly trained managers and workers required by the complex dairy industry. In-depth training programs must be offered for farm operators, for plant managers, and for technicians and professional workers associated with all phases of production, processing, manufacturing, and distribution.

—As new knowledge is obtained in the laboratory—new management techniques, new products, new cost-cutting methods, and means of quality control—these must be disseminated quickly and thoroughly to everyone concerned. Consumers of dairy products will benefit both directly and indirectly from higher quality new and improved products, ever available at reasonable prices.

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